

with the disease.

Claim 1, SEQ ID NO 1369; 180pp; English.

This invention relates to novel mitochondrial targets that can be used for therapeutic intervention in treating a disease associated with altered mitochondrial function. Specifically, it refers to a method for identifying proteins of the human heart mitochondrial proteome that are useful for drug screening assays, as well as therapeutic targets. The present invention describes a method for identifying such proteins that can be used in the treatment of various diseases associated with altered mitochondrial function including diabetes mellitus, Huntington's disease, osteoarthritis, Leber's hereditary optic neuropathy (LHON), mitochondrial encephalopathy lactic acidosis and stroke (MELAS), myoclonic epilepsy ragged red fibre syndrome (MERRF) or cancer. Accordingly, these compositions have neuroprotective, neurotropic, antidiabetic, anti-comvulsant, antiarrhythmic, osteopathic, ophthalmological and cytoskeletal activities. This polypeptide sequence is a human heart mitochondrial protein of the invention.

Sequence 401 AA;

Query Match 100.0%; Score 251; DB 7; Length 401;  
Best Local Similarity 100.0%; Pred. No. 7, 9e-21;  
Matches 52; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

1 GVKEPTPOCKYORLHVEQELTTEVEKIKTTVESATBEKLTPTLAKOLAAL 52  
94 GVKEPTPOCKYORLHVEQELTTEVEKIKTTVESATBEKLTPTLAKOLAAL 145

RESULT 4  
ID ABP53018 standard; protein; 406 AA.

ABP53018;  
05-NOV-2002 (first entry)

Human p50 amino acid sequence SEQ ID NO:53.

Cellular proliferation inhibition; cytoskeletal; antiinflammatory; cancer;  
p50 inhibitor; dynamitin inhibitor; gene therapy; tumour; carcinoma;  
sarcoma; glioblastoma; leukaemia; lymphoid malignancy; neuronal disorder;  
glial disorder; astrocytal disorder; hypothalamic disorder; inflammatory;  
glandular disorder; macropthalgal disorder; epithelial disorder;  
stromal disorder; blastocoealic disorder; angiogenic disorder;  
immunologic disorder.

Homo sapiens.

WO200264779-A2.

22-AUG-2002.

21-JAN-2002; 2002WO-US001708.

14-FEB-2001; 2001US-00782816.

(REGC ) UNITV CALIFORNIA.

Sharp DJ, Rogers GC, Scholey JM;

WPI; 2002-657599/70.

New peptide inhibitors of p50/dynamitin useful for treating cancer by  
inhibiting cellular proliferation, e.g. benign or malignant tumors,  
leukemia and lymphoid malignancies, or inflammatory, angiogenic and  
immunologic disorders.

Discloure; Fig 1, 55pp; English.

The present invention describes an isolated peptide (1) comprising or

CC having at least 90% identity to (P1) or (P2). Where (P1) and (P2) are the  
CC sequences given in ABP52966 and ABP52967 and can have C-terminal and N-  
CC terminal extensions. (1) have cytoskeletal and antiinflammatory activities  
CC and can be used as p50/dynamitin inhibitors and in gene therapy. The  
CC peptides, nucleic acid molecules and methods from the present invention  
CC are useful for treating cancer by inhibiting cellular proliferation, such  
CC as benign or malignant tumours (renal, liver, kidney, bladder, breast,  
CC gastric, ovarian, colorectal, prostate, pancreatic, lung, vulval,  
CC thyroid, hepatic carcinomas, sarcomas, glioblastomas, and various head and  
CC neck tumours); leukaemias and lymphoid malignancies, other disorders such  
CC as neuronal, glial, astrocytal, hypothalamic and other glandular,  
CC macropthalgal, epithelial, stromal and blastocoealic disorders; and  
CC inflammatory, angiogenic and immunologic disorders. The present sequence  
CC represents human p50 which is given in the exemplification of the present  
CC invention

Sequence 406 AA;

Query Match 100.0%; Score 251; DB 5; Length 406;  
Best Local Similarity 100.0%; Pred. No. 8, 1e-21;  
Matches 52; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

1 GVKEPTPOCKYORLHVEQELTTEVEKIKTTVESATBEKLTPTLAKOLAAL 52  
99 GVKEPTPOCKYORLHVEQELTTEVEKIKTTVESATBEKLTPTLAKOLAAL 150

RESULT 5  
ID AAB58968 standard; protein; 465 AA.

AAB58968;

27-MAR-2001 (first entry)

Breast and ovarian cancer associated antigen protein sequence SEQ ID 676.

Human; breast cancer; ovarian cancer; cytoskeletal; immunosuppressive;  
neurotropic; neuroprotective; antiviral; antiallergic; hepatotropic;  
antidiabetic; antiinflammatory; antitumor; vulnary; anticonvulsant;  
antibacterial; antifungal; antiparasitic; cardiac; immune disorder;  
Addison's disease; allergy; autoimmune haemolytic anaemia;  
autoimmune thyroiditis; diabetes mellitus; Crohn's disease;  
multiple sclerosis; rheumatoid arthritis; ulcerative colitis;  
cardiovascular disorder; wound healing; neurological disease.

Homo sapiens.

WO200055173-A1.

21-SEP-2000.

08-MAR-2000; 2000WO-US005881.

12-MAR-1999; 99US-0124270P.

(HUMA-) HUMAN GENOME SCI INC.

Rosen CA, Ruben SM;

WPI; 2000-611515/58.

N-PSDB; AAF21871.

New human breast and ovarian cancer associated gene sequences and the  
polypeptides encoded by these genes, useful in the prevention, treatment  
and diagnosis of cancer, immune disorders, cardiovascular disorders and  
neurological diseases.

Claim 11, Page 1126-1128; 1299pp; English.

Sequences AAF21614 - AAF22031 represent DNA sequences encoding human  
proteins AAB58711 - AAB59128. The DNA and protein sequences are  
associated with breast and ovarian cancer. Included in the invention are

Exhibit 2  
20F2

CC sequences AAF22032 - AAF22040 and AAF59129 which are used in the  
CC isolation and characterization of the DNA and protein sequences of the  
CC invention. The breast and ovarian cancer associated DNA, protein, agonist  
CC or antagonist sequences exhibit cytostatic; immunosuppressive; neutrotropic;  
CC neuroprotective; antiviral; antiallergic; hepatotropic; antidiabetic;  
CC antiinflammatory; antitumor; anticonvulsant; antibacterial;  
CC antifungal; antiparasitic and cardiact activity. The polynucleotide and  
CC protein sequences are used in the diagnosis of cancer, particularly  
CC breast and ovarian cancer. The nucleic acid sequences, proteins, agonists  
CC and antagonists may also be used in the diagnosis, prevention and treatment  
CC of immune disorders e.g. Addison's disease, allergies, autoimmune  
CC haemolytic anaemia, autoimmune thyroiditis, diabetes mellitus, Crohn's  
CC disease, multiple sclerosis, rheumatoid arthritis and ulcerative colitis;  
CC cardiovascular disorders such as myocardial ischaemias; wound healing;  
CC neurological diseases such as cerebral anoxia and epilepsy; and  
CC infectious diseases

CC Sequence 465 AA;

Query Match 100.0%; Score 251; DB 3; Length 465;  
Best Local Similarity 100.0%; Pred. No. 9.4e-21;  
Matches 52; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

1 GVKEPQKKYQRLHVEVQLTTEVEKIKTTVKESATEBEKLPVLAQKQAL 52  
158 GVKEPQKKYQRLHVEVQLTTEVEKIKTTVKESATEBEKLPVLAQKQAL 209

RESULT 6  
ID AAF53019 standard; protein, 183 AA.  
XX AAF53019;  
AC AAF53019;  
XX AAF53019;  
DT 05-NOV-2002 (first entry)

DE Mouse p50 amino acid sequence SEQ ID NO:54.

XX Cellular proliferation inhibition; cytostatic; antiinflammatory; cancer;  
XX p50 inhibitor; dynamitin inhibitor; gene therapy; tumour; carcinoma;  
XX sarcoma; glioblastoma; leukemia; lymphoid malignancy; neuronal disorder;  
XX gliad disorder; astrocytal disorder; hypochalamic disorder; inflammatory;  
XX glandular disorder; macropagal disorder; epithelial disorder;  
XX stromal disorder; blastococelic disorder; angiogenic disorder;  
XX immunologic disorder.

XX Mus musculus.

XX WO200264779-A2.

XX 22-AUG-2002.

XX 21-JAN-2002; 2002WO-US001708.

XX 14-FEB-2001; 2001US-00782816.

XX (REGC ) UNIV CALIFORNIA.

XX Sharp DJ, Rogers GC, Scholey JM;

XX WPI; 2002-657599/70.

XX New peptide inhibitors of p50/dynamitin useful for treating cancer by  
XX inhibiting cellular proliferation, e.g. benign or malignant tumors,  
XX leukemia and lymphoid malignancies, or inflammatory, angiogenic and  
XX immunologic disorders.

XX Disclosure; Fig 2; 55pp; English.

XX The present invention describes an isolated peptide (I) comprising or  
XX consisting at least 90% identity to (P1) or (P2). Where (P1) and (P2) are the  
XX sequences given in AAF52966 and AAF52967 and can have C-terminal and N-  
XX terminal extensions. (I) have cytostatic and antiinflammatory activities

CC and can be used as p50/dynamitin inhibitors and in gene therapy. The  
CC peptides, nucleic acid molecules and methods from the present invention  
CC are useful for treating cancer by inhibiting cellular proliferation, such  
CC as benign or malignant tumours (renal, liver, kidney, bladder, breast,  
CC gastric, ovarian, colorectal, prostate, pancreatic, lung, vulval,  
CC thyroid, hepatic carcinomas, sarcomas, glioblastomas, and various head and  
CC neck tumours); leukemias and lymphoid malignancies, other disorders such  
CC as neuronal, gliad, astrocytal, hypochalamic and other glandular,  
CC macropagal, epithelial, stromal and blastococelic disorders; and  
CC inflammatory, angiogenic and immunologic disorders. The present sequence  
CC represents mouse p50 which is given in the exemplification of the present  
CC invention

CC Sequence 183 AA;

Query Match 98.8%; Score 248; DB 5; Length 183;  
Best Local Similarity 98.1%; Pred. No. 7.1e-21;  
Matches 51; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

1 GVKEPQKKYQRLHVEVQLTTEVEKIKTTVKESATEBEKLPVLAQKQAL 52  
94 GVKEPQKKYQRLHVEVQLTTEVEKIKTTVKESATEBEKLPVLAQKQAL 145

RESULT 7  
ID AAF53016 standard; peptide, 52 AA.  
XX AAF53016;  
AC AAF53016;  
XX AAF53016;  
DT 05-NOV-2002 (first entry)

DE Cellular proliferation peptide inhibitor SEQ ID NO:51.

XX Cellular proliferation inhibition; cytostatic; antiinflammatory; cancer;  
XX p50 inhibitor; dynamitin inhibitor; gene therapy; tumour; carcinoma;  
XX sarcoma; glioblastoma; leukemia; lymphoid malignancy; neuronal disorder;  
XX gliad disorder; astrocytal disorder; hypochalamic disorder; inflammatory;  
XX glandular disorder; macropagal disorder; epithelial disorder;  
XX stromal disorder; blastococelic disorder; angiogenic disorder;  
XX immunologic disorder.

XX Homo sapiens.

XX Mus musculus.

XX Synthetic.

XX Key Location/Qualifiers  
XX Misc-difference 44 /label= Leu, Val  
XX FT /note= "Leu in humans and Val in Mus musculus"

XX WO200264779-A2.

XX 22-AUG-2002.

XX 21-JAN-2002; 2002WO-US001708.

XX 14-FEB-2001; 2001US-00782816.

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XX New peptide inhibitors of p50/dynamitin useful for treating cancer by  
XX inhibiting cellular proliferation, e.g. benign or malignant tumors,  
XX leukemia and lymphoid malignancies, or inflammatory, angiogenic and  
XX immunologic disorders.

XX Claim 2; Page 31; 55pp; English.

XX The present invention describes an isolated peptide (I) comprising or